

cFS-Based Autonomous Requirements Testing Tool, Phase I

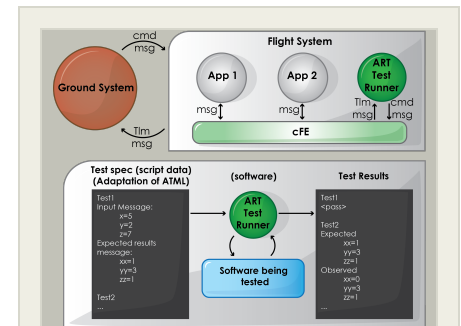
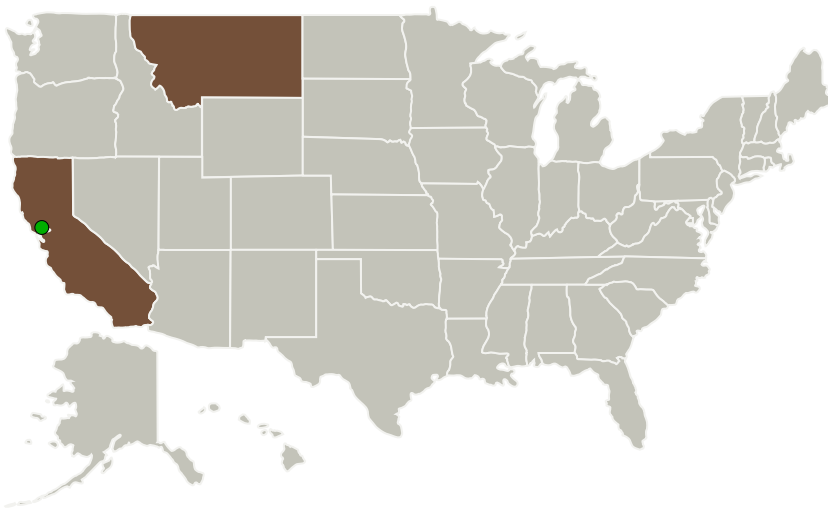
Completed Technology Project (2016 - 2016)



Project Introduction

The S&K Team proposes design of a tool suite, Autonomy Requirements Tester (ART), to address the difficulty of stating autonomy requirements and the links to clear testing plans. ART will represent autonomy requirements, test plans, and test results, and the relationships among them so that it is less difficult to state autonomy requirements clearly, to communicate test plans clearly among the full development team, to guide software development from requirements through acceptance tests, and to communicate test results in terms of the completeness with which the requirements have been tested. This will extend the state of the art by clarifying the progression from autonomy requirements to test results and make the tests more modular and reusable. The S&K team will first identify representative autonomy requirements for a design reference mission and high-level descriptions of how to test those requirements in the developed system. The team will then design XML schemas to represent data structures that define autonomy requirements, related test objectives, related cFS messages, test specifications and results. Next, they identify ways to generate and execute those tests by publishing and subscribing to appropriate cFS messages to run tests and examine the results. The S&K team will design information displays for showing relationship among requirements, test designs and results so that it is clear how thoroughly the autonomy requirements have been tested and how they performed. The team will develop a concept of operations for ART. They will prototype enough of the concept to demonstrate the feasibility of the approach, write a final report, and deliver results along with submission of a Phase II proposal.

Primary U.S. Work Locations and Key Partners



cFS-based Autonomous Requirements Testing Tool, Phase I

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

cFS-Based Autonomous Requirements Testing Tool, Phase I



Completed Technology Project (2016 - 2016)

Organizations Performing Work	Role	Type	Location
S&K Global Solutions, LLC	Lead Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Polson, Montana
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations

California	Montana
------------	---------

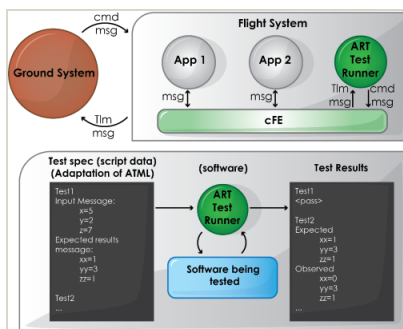
Project Transitions

**June 2016:** Project Start**December 2016:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140423>)

Images



Briefing Chart Image

cFS-based Autonomous Requirements Testing Tool, Phase I
(<https://techport.nasa.gov/image/133884>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

S&K Global Solutions, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Carroll Thronesbery

Technology Maturity (TRL)

Start: 3

Current: 4

Estimated End: 4

